

1 CLAIMS

2 We claim:

3
4 1. A controller for use with a capacitive mat, the controller configured to:
5 selectively electrically energize a first node of the capacitive mat in response to
6 an input;
7 wait for a first predetermined period of time; and
8 electrically energize a second node of the capacitive mat after the first
9 predetermined period time.

10
11 2. The controller of claim 1, and wherein the controller is further configured
12 to:
13 wait for a second predetermined period of time; and
14 electrically de-energize the first node and the second node after the second
15 predetermined period of time.

16
17 3. The controller of claim 2, and wherein the controller is further configured to
18 electrically couple the first node and the second node to a ground reference potential
19 during the electrically de-energizing.

20
21 4. The controller of claim 1, and wherein the controller is further configured to
22 receive the input from an imaging apparatus controller.

23
24 5. The controller of claim 1, and wherein the controller is further configured
25 to:
26 electrically energize the first node at a predetermined positive potential; and
27 electrically energize the second node at a predetermined negative potential.

28
29 6. A controller for use with a capacitive mat, the controller configured to:
30 selectively electrically energize a first node of the capacitive mat at a
31 time-increasing positive potential in response to an input; and
32 electrically energize a second node of the capacitive mat at a time-increasing
33 negative potential contemporaneous with the electrically energizing the first node.

1 7. The controller of claim 6, and wherein the controller is further configured
2 to:

3 electrically energize the first node at the time-increasing positive potential and the
4 second node at the time-increasing negative potential for a predetermined period of
5 time; and

6 electrically de-energize the first node and the second node after the
7 predetermined period of time.

8
9 8. The controller of claim 7, and wherein the controller is further configured to
10 electrically couple the first node and the second node to a ground reference potential
11 during the electrically de-energizing.

12
13 9. The controller of claim 6, and wherein the controller is further configured to
14 receive the input from an imaging apparatus controller.

15
16 10. The controller of claim 6, and wherein the controller is further configured
17 such that each of the time-increasing positive potential and the time-increasing negative
18 potential includes an initial step-change in electrical potential relative to a ground
19 reference potential.

20
21 11. A controller for use with a capacitive mat, the controller configured to:
22 selectively electrically energize a first node of the capacitive mat at a first positive
23 potential and a second node of the capacitive mat at a first negative potential in
24 response to an input;

25 wait for a first predetermined period of time; and
26 electrically energize the first node at a second positive potential and the second
27 node at a second negative potential after the first predetermined period of time.

28
29 12. The controller of claim 11, and wherein the controller is further configured
30 to:

31 wait for a second predetermined period of time; and
32 electrically de-energize the first node and the second node after the second
33 predetermined period of time.

1 13. The controller of claim 12, and wherein the controller is further configured
2 to couple the first node and the second node to a reference potential during the
3 electrically de-energizing.
4

5 14. The controller of claim 11, and wherein the controller is further configured
6 to receive the input from an imaging apparatus controller.
7

8 15. A sheet media support apparatus, comprising:
9 a capacitive mat including electrical first and second nodes, the capacitive mat
10 configured to electrically attractingly support a sheet media; and
11 a controller coupled to the first and second nodes of the capacitive mat and
12 configured to:

13 selectively electrically energize the first node at a first predetermined
14 potential in response to an input;

15 wait for a first predetermined period of time; and

16 electrically energize the second node at a second predetermined potential
17 after the first predetermined period of time.
18

19 16. The apparatus of claim 15, and wherein the capacitive mat includes:
20 a first plurality of electrical conductors electrically coupled to the first node; and
21 a second plurality of electrical conductors electrically coupled to the second node.
22

23 17. The apparatus of claim 15, and wherein the capacitive mat defines a
24 substantially planar sheet media support surface.
25

26 18. The apparatus of claim 15, and wherein the capacitive mat defines a
27 curved sheet media support surface.
28

29 19. The apparatus of claim 15, and wherein the controller is further configured
30 such that the first predetermined potential is positive relative to the second
31 predetermined potential.
32

33 20. The apparatus of claim 15, and wherein the controller is further configured
34 to receive the input from an imaging apparatus controller.

1 21. The apparatus of claim 15, and wherein the controller is further configured
2 to:

3 wait for a second predetermined period of time; and
4 electrically couple the first node and the second node to a ground reference
5 potential after the second predetermined period of time.

6
7 22. A sheet media support apparatus, comprising
8 a capacitive mat including electrical first and second nodes, the capacitive mat
9 configured to electrically attractingly support a sheet media; and
10 a controller coupled to the first and second nodes of the capacitive mat and
11 configured to:

12 selectively electrically energize the first node at a step-change positive
13 potential and the second node at a step-change negative potential in response to
14 an input; and

15 electrically energize the first node at a time-increasing positive potential
16 and the second node at a time-increasing negative potential.

17
18 23. The apparatus of claim 22, and wherein the capacitive mat includes:
19 a first plurality of electrical conductors electrically coupled to the first node; and
20 a second plurality of electrical conductors electrically coupled to the second node.

21
22 24. The apparatus of claim 22, and wherein the capacitive mat defines a
23 substantially planar sheet media support surface.

24
25 25. The apparatus of claim 22, and wherein the capacitive mat defines a
26 curved sheet media support surface.

27
28 26. The apparatus of claim 22, and wherein the controller is further configured
29 to:

30 electrically energize the first node at the time-increasing positive potential and the
31 second node at the time-increasing negative potential for a predetermined period of
32 time; and

33 electrically couple the first node and the second node to a ground reference
34 potential after the predetermined period of time.

1 27. The apparatus of claim 22, and wherein the capacitive mat and the
2 controller are each further configured to cooperate with an imaging apparatus.

3
4 28. A sheet media support apparatus, comprising:
5 a capacitive mat including electrical first and second nodes, the capacitive mat
6 configured to electrically attractingly support a sheet media; and
7 a controller coupled to the first and second nodes of the capacitive mat and
8 configured to:

9 selectively electrically energize the first node at a first predetermined
10 positive potential and electrically energize the second node at a first
11 predetermined negative potential in response to an input;

12 wait for a first predetermined period of time; and

13 electrically energize the first node at a second predetermined positive
14 potential and electrically energize the second node at a second predetermined
15 negative potential after the first predetermined period of time.

16
17 29. The apparatus of claim 28, and wherein the capacitive mat includes:
18 a first plurality of electrical conductors electrically coupled to the first node; and
19 a second plurality of electrical conductors electrically coupled to the second node.

20
21 30. The apparatus of claim 28, and wherein the capacitive mat defines a
22 substantially planar sheet media support surface.

23
24 31. The apparatus of claim 28, and wherein the capacitive mat defines a
25 curved sheet media support surface.

26
27 32. The apparatus of claim 28, and wherein the controller is further configured
28 such that the second predetermined positive potential is of greater magnitude than the
29 first predetermined positive potential relative to a ground reference potential.

30
31 33. The apparatus of claim 28, and wherein the controller is further configured
32 to receive the input from an imaging apparatus controller.

1 34. The apparatus of claim 28, and wherein the controller is further configured
2 to:
3 wait for a second predetermined period of time; and
4 electrically couple the first node and the second node to a ground reference
5 potential after the second predetermined period of time.
6

7 35. A method of controlling a capacitive mat, comprising:
8 receiving an input
9 electrically energizing a first node of the capacitive mat at a first predetermined
10 potential in response to receiving the input;
11 waiting for a first predetermined period of time; and
12 electrically energizing a second node of the capacitive mat after the first
13 predetermined period of time.
14

15 36. The method of claim 35, and further comprising:
16 waiting for a second predetermined period of time; and
17 electrically de-energizing the first node and the second node after the second
18 predetermined period of time.
19

20 37. The method of claim 36, and further comprising electrically coupling the
21 first node and the second node to a ground reference potential during the de-energizing.
22

23 38. The method of claim 35, and wherein electrically energizing the first node
24 includes electrically energizing the first node at a positive predetermined potential
25 relative to the second predetermined potential.
26

27 39. The method of claim 35, and further comprising electrically attractively
28 supporting a sheet media using the capacitive mat.
29

30 40. The method of claim 35, and wherein receiving the input includes
31 receiving the input from a controller of an imaging apparatus.

1 41. A method of controlling a capacitive mat, comprising:
2 receiving an input;
3 electrically energizing a first node of the capacitive mat at a time-increasing
4 positive potential in response to receiving the input; and
5 electrically energizing a second node of the capacitive mat at a time-increasing
6 negative potential contemporaneous with the electrically energizing the first node.

7
8 42. The method of claim 41, and further comprising:
9 continuing electrically energizing the first node and the second node for a
10 predetermined period of time; and
11 electrically de-energizing the first node and the second node after the
12 predetermined period of time.

13
14 43. The method of claim 41, and wherein electrically de-energizing the first
15 node and the second node includes electrically coupling the first node and the second
16 node to a reference potential.

17
18 44. The method of claim 41, and wherein receiving the input includes
19 receiving the input from a controller of an imaging apparatus.

20
21 45. The method of claim 41, and further comprising electrically attractively
22 supporting a sheet media using the capacitive mat.

23
24 46. The method of claim 41, and wherein:
25 electrically energizing the first node includes electrically energizing the first node
26 at a step-change positive potential prior to the time-increasing positive potential in
27 response to receiving the input; and
28 electrically energizing the second node includes electrically energizing the
29 second node at a step-change negative potential prior to the time-increasing negative
30 potential.

1 47. A method of controlling a capacitive mat, comprising:
2 receiving an input;
3 electrically energizing a first node of the capacitive mat at a first positive potential
4 and a second node of the capacitive mat a first negative potential in response to
5 receiving the input;
6 waiting for a first predetermined period of time; and
7 electrically energizing the first node at a second positive potential and the second
8 node at a second negative potential after the first predetermined period of time.

9
10 48. The method of claim 47, and further comprising:
11 waiting for a second predetermined period of time; and
12 electrically de-energizing the first node and the second node after the second
13 predetermined period of time.

14
15 49. The method of claim 48, and wherein electrically de-energizing the first
16 node and the second node includes electrically coupling the first node and the second
17 node to a reference potential.

18
19 50. The method of claim 47, and wherein receiving the input includes
20 receiving the input from an imaging apparatus controller.

21
22 51. The method of claim 47, and further comprising electrically attractively
23 supporting a sheet media using the capacitive mat.

24
25 52. An apparatus for supporting a sheet media, comprising:
26 capacitive mat means for electrically attractingly supporting the sheet media; and
27 mat controller means for selectively electrically energizing the capacitive mat
28 means in a predetermined sequential order in response to an input.

29
30 53. The apparatus of claim 52, and wherein the capacitive mat means
31 includes:
32 an electrical first node and an electrical second node;
33 a first plurality of electrical conductors electrically coupled to the first node; and
34 a second plurality of electrical conductors electrically coupled to the second node.

1 54. The apparatus of claim 52, and wherein the mat controller means is
2 configured such that electrically energizing the capacitive mat means in the
3 predetermined sequential order includes at least one of a step change increase in
4 electrical potential, a period of time-increasing electrical potential, or a period of
5 substantially constant electrical potential.

6
7 55. The apparatus of claim 52, and wherein the mat controller means is
8 configured to receive the input from an imaging apparatus controller.